Optimizing Aging Collaborative

Anna Chodos, MD, MPH
Zuckerberg San Francisco General Hospital

Christine Ritchie, MD, MSPH
UCSF Parnassus-Laurel Heights-Mission Bay

Division of Geriatrics
University of California, San Francisco

The Optimizing Aging Collaborative at UCSF is supported by the UCSF Geriatrics Workforce Enhancement Program: Health Resources and Services Administration (HRSA) Grant Number U1QHP28727.
Outline for Today

• Aging... and thriving... and resilience
• The Brain and Aging
• Mobility and Physical Activity
• Medications
# Life Expectancy by Age

<table>
<thead>
<tr>
<th>Age</th>
<th>Total</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>78.8</td>
<td>76.4</td>
<td>81.2</td>
</tr>
<tr>
<td>1</td>
<td>78.3</td>
<td>75.9</td>
<td>80.6</td>
</tr>
<tr>
<td>5</td>
<td>74.4</td>
<td>72.0</td>
<td>76.7</td>
</tr>
<tr>
<td>10</td>
<td>69.4</td>
<td>67.0</td>
<td>71.7</td>
</tr>
<tr>
<td>15</td>
<td>64.5</td>
<td>62.1</td>
<td>66.8</td>
</tr>
<tr>
<td>20</td>
<td>59.6</td>
<td>57.3</td>
<td>61.9</td>
</tr>
<tr>
<td>25</td>
<td>54.8</td>
<td>52.6</td>
<td>57.0</td>
</tr>
<tr>
<td>30</td>
<td>50.1</td>
<td>48.0</td>
<td>52.1</td>
</tr>
<tr>
<td>35</td>
<td>45.4</td>
<td>43.3</td>
<td>47.3</td>
</tr>
<tr>
<td>40</td>
<td>40.7</td>
<td>38.7</td>
<td>42.6</td>
</tr>
<tr>
<td>45</td>
<td>36.1</td>
<td>34.1</td>
<td>37.9</td>
</tr>
<tr>
<td>50</td>
<td>31.6</td>
<td>29.7</td>
<td>33.3</td>
</tr>
<tr>
<td>55</td>
<td>27.3</td>
<td>25.6</td>
<td>28.9</td>
</tr>
<tr>
<td>60</td>
<td>23.2</td>
<td>21.7</td>
<td>24.6</td>
</tr>
<tr>
<td>65</td>
<td>19.3</td>
<td>17.9</td>
<td>20.5</td>
</tr>
<tr>
<td>70</td>
<td>15.6</td>
<td>14.4</td>
<td>16.6</td>
</tr>
<tr>
<td>75</td>
<td>12.2</td>
<td>11.2</td>
<td>12.9</td>
</tr>
<tr>
<td>80</td>
<td>9.1</td>
<td>8.3</td>
<td>9.7</td>
</tr>
<tr>
<td>85</td>
<td>6.6</td>
<td>5.9</td>
<td>7.0</td>
</tr>
<tr>
<td>90</td>
<td>4.6</td>
<td>4.1</td>
<td>4.8</td>
</tr>
<tr>
<td>95</td>
<td>3.2</td>
<td>2.9</td>
<td>3.3</td>
</tr>
<tr>
<td>100</td>
<td>2.3</td>
<td>2.1</td>
<td>2.3</td>
</tr>
</tbody>
</table>


- Optimize Aging Collaborative at UCSF – Geriatric Workforce Enhancement Program
Lower function associated with shorter life expectancy

<table>
<thead>
<tr>
<th>Age</th>
<th>Independent</th>
<th>Mobility disabled</th>
<th>ADL disabled</th>
</tr>
</thead>
<tbody>
<tr>
<td>70</td>
<td>16.7</td>
<td>15.7</td>
<td>11.5</td>
</tr>
<tr>
<td>85</td>
<td>8</td>
<td>6.9</td>
<td>4.6</td>
</tr>
</tbody>
</table>

*Mobility disabled = inability to walk half a mile and/or walk up and down stairs to the second floor without help.


- Optimize Aging Collaborative at UCSF – Geriatric Workforce Enhancement Program
What is “older age”?

- Would be nice if we could truly measure “physiologic age”
- Chronology is important, but so is function
NYT: “Want to Be Happy? Think Like an Old Person”

John Leland 12/29/17
Aging = Thriving


Optimize Aging Collaborative at UCSF - Geriatric Workforce Enhancement Program
Aging... and Resilience

• Resilience
  – Resilience is the result of successful adaptation to adversity
  – It is revealed by an individual’s ability to cope and recover from crises, sustain a sense of purpose and vitality and emerge stronger from stressful experiences
Can you build resilience?

• One can describe the normal physiologic changes of aging as a type of adversity that older adults must respond to

• You have a significant amount of control over how you respond and adapt to that stress
Changes with Aging

• There are many normal physiological changes with aging
• It’s important to distinguish those from the pathological changes of disease/illness
• We haven’t quite figured out the distinction in some cases

Let’s start with the brain...
The Brain
Brain Aging

- Neuronal loss in the brain throughout life (the amount & location varies)
- Slowed neuronal transmission = increased processing time
- Some short term memory loss that is not progressive and that does not impair function

*J. Ger. 47: B26, 1992.*
Myth vs. Reality

• **MYTH** - Having a “little touch of dementia” is a typical part of aging.

• **REALITY** - As we age, many of our physical capabilities, including memory, diminish. But having a harder time remembering some things is very different from having a form of dementia like Alzheimer’s disease.
Myth vs. Reality

• **MYTH** - If I have memory loss, that means I have Alzheimer’s disease or dementia.

• **REALITY** - Many people have trouble with memory loss, but it does not mean they have Alzheimer’s disease. Most do not. It is best to visit a doctor to determine the cause of the memory loss symptoms.
Dementia

• 1 in 9 adults age 65+, and ~1 in 3 age 85+ have dementia

Cognitive impairment unrecognized in ~50% of affected patients in primary care.

Alzheimers Association Facts and Figures 2015; Yaffe K et al. BMJ 2013;347; Van Rensbergen G, Nawrot T. BMC Geriatrics 2010; Cordell Alz and Dementia 2013
Dementia is an Umbrella Term

Dementia

Reversible dementias

Vascular dementia

Alzheimer's disease

Frontotemporal dementia

Lewy body disease
How to tell normal versus abnormal?

- Age-related cognitive decline
  - Impairment of cognitive functioning that is within normal limits given the person’s age

- Mild cognitive impairment (Minor Neurocognitive Disorder)
  - Cognitive complaints with impaired neuropsychological test performance and **intact daily living**

- Dementia (Major Neurocognitive Disorder)
  - Acquired impairment of cognition (at least 1)
    - Learning and memory, language, executive function, complex attention, perceptual-motor, social cognition
  - **Impairment of daily activities**, at minimal with impairments in IADLs
  - Not from delirium or other medical/psychiatric disorder
Red flags for Dementia

- Repetition
- Losing track of conversation
- Frequently deferring to caregiver/family
- Missing appointments
- Inattentive to appearance, behavioral changes
- Paucity of content, detail in conversation
- Falls or injury, hospitalizations
- Unexplained medical decompensation
- Unexplained weight loss
What can you do?

• If you’re concerned about red flags, talk about what’s happening

• See a doctor: find out why it’s happening and what to do about it

• Follow up with resources from organizations
What can you do?

• Brain health = body health + active social life

• Risk for dementia is increased by a damaged heart or blood vessels, and poorly controlled diabetes

• Fix hearing and vision problems

• There is a strong link between:
  – serious head injury and risk for dementia
  – depression and dementia
MOBILITY

At Age 101, She’s A World Champ Runner

January 1, 2018 - 7:00 AM ET

CHHAVI SACHDEV

Man Kaur of India celebrates after competing in the 100-meter sprint in the 100+ age category at the World Masters Games in Auckland, New Zealand, in April.

Optimize Aging Collaborative at UCSF - Geriatric Workforce Enhancement Program
Mobility and Activity

Physiologic Changes and Activity

• Your Heart:
  – The valves of the heart thicken and become stiffer
  – Maximal heart rate decreases
  – Slight increase in the size of the heart and the heart wall thickens
  – An aging heart may be slightly less able to tolerate increased workloads under stress
Mobility and Activity

• Your Lungs:
  – Less functional alveoli with slightly thickened capillaries → decreased surface area available for $O_2$-$CO_2$ exchange → lower $O_2$ to supply vital organs, especially in setting of acute respiratory illness
Mobility and Activity

• Your Muscles
  – Sarcopenia (↓ muscle mass & contractile force)
  – Some of this muscle loss is due to diminished growth hormone production, but exactly how much is due to aging versus disuse is unclear.
  – Associated with increased fatigue & risk of falling
Mobility and Activity

• Your Eyes
  – The pupil loses some of its ability to dilate
  – The lens loses fluid and becomes less flexible so that it’s harder to see in the near range
  – Reduced color vision

• Your Ears
  – Nerve loss and otoliths in the inner ear
  – Reduced acuity and noise localization
Mobility Disability

• The gap between an individual’s physical ability and environmental challenges.
  – **Ability**, examples: strength, balance, sensation
  – **Environment**, examples: uneven surface, hill, indoor vs. outdoor

How do we measure Mobility?

• For health or physical reasons, do you have difficulty climbing up 10 steps or walking one-quarter of a mile?

• Because of underlying health or physical reasons, have you modified the way you climb 10 steps or walk a quarter of a mile?

Measuring mobility

• Neurologic exam
  – Gait speed = 10 feet at a comfortable pace ≤3 sec
  – Balance

• Short Physical Performance Battery
  – Chair stands
  – Semitandem and tandem stand
  – 8 ft. walk
Mobility Limitations are Common

- Of adults ≥65 NOT in long term care, 27% have “difficulty walking or climbing stairs”

CDC report, July 31, 2015, 64(29);777-783.
Activity and Older Adults

- Physical activity decrease with age
Activity is Possible and Beneficial at Any Ability Level


Optimize Aging Collaborative at UCSF - Geriatric Workforce Enhancement Program
Benefits of Activity in Older Adults

- Improved disease management
- Improved brain health
- Prevention of disability and loss of independence
- Improved quality of life
- Lower mortality risk

BMJ 2015; 350 :h100
Arch Gerontol Geriatr. 2014 Jan-Feb; 58(1): 74–79.
Recommendations: health.gov

Physical Activity Guidelines for ALL ADULTS

• Avoid inactivity
• At least 150 minutes of moderate-intensity/week OR 75 minutes of vigorous-intensity/week
• Muscle-strengthening 2 days or more/week

Optimizing Aging Collaborative at UCSF – Geriatric Workforce Enhancement Program
Physical Activity Guidelines for OLDER ADULTS

• Do it as abilities and conditions allow
• Exercises that maintain or improve balance if at risk of falling
• Determine level of effort based on level of fitness
• Understand how any chronic conditions might affect ability to do regular activity
Function vs Fun

- Get out of bed
- Get up from a chair
- Get up from the floor
- Get out and go shopping

- Get up and dance!
- Get to a cross court shot in tennis
Your body on drugs!
Medicines save lives
Treating high blood pressure saves lives

SPRINT: A randomized trials of “intensive” blood pressure lowering

Aiming for a lower blood pressure goal reduced deaths by more than 20%!

(Especially in adults over 75)

*NEJM 2015, 373:2103*
Too much of anything can harm

“polypharmacy”
How many medications do we take?

- Community-dwelling older adults: 28% take 5 or more medications

- Nursing home residents: Up to 74% take 9 or more medications
Problems caused by polypharmacy

• Duplicate or unnecessary medications
• Side effects and other adverse drug events
• Interactions with other medications
• Difficult to take them all as intended
• “Prescribing cascades”
• Expensive
• “Medicalizing” life
Principle:
Diminishing benefits and increasing harms
Choose wisely!

Effect size

Number of meds

Diminishing marginal benefit

Increasing marginal risks

More good than harm! Where you and your doctor should be. Choose wisely!

Falls
Cognitive decline
Delirium
Hospitalization
Med interactions
Side effects
Incorrect use
Etc etc…

Optimizing Aging Collaborative at UCSF – Geriatric Workforce Enhancement Program
Goldilocks: U-shaped curves

Risk or Outcome (e.g. death)

Blood pressure too high = Strokes Heart attacks

Blood pressure too low = Falls Strokes

Just right!

Intensity of treatment
Example: Blood pressure and kidney disease

Study of 650,000 older veterans with high blood pressure and kidney disease

How did their treated blood pressure affect their risk of dying?

Kovedsy et al., Annals IM

2013

Optimizing Aging Collaborative at UCSF – Geriatric Workforce Enhancement Program
Principle:
Everyone gets side effects, but older adults get them worse
Medications Causing Cognitive Symptoms

- Benzodiazepines
- Anti-cholinergics: diphenhydramine, hydroxyzine, chlorpheniramine
  - Including OTC combination meds- tylenol PM
- Sleep medications: Z-drugs
- Muscle relaxants (cyclobenzaprine, carisoprodol)
- Antispasmodics: oxybutynin, tolterodine
- TCA anti-depressants
- Anti-psychotics
What you can do

• “Why am I taking this?”
• “Do I still need it, or as much of it?”
• “Is it still the best choice?”

• If no good answers to these questions→ ask to STOP
Ask your doctor about the Beers Criteria

• Beers Criteria is from the American Geriatrics Society

• List of medications that should be used with caution specifically in older adults

• Updated every few years by national experts
2015 Beers: Ten groups of medicines

- Non-steroidal anti-inflammatory drugs (NSAIDs)
- Digoxin (Lanoxin)
- Certain diabetes drugs
- Muscle relaxants
- Certain anxiety and insomnia drugs
- Certain anticholinergic drugs
- Meperidine (Demerol)
- Certain antihistamines like diphenhydramine
- Antipsychotics
- Estrogen pills and patches
How to Reduce Polypharmacy:

- Minimize medication use (drugs are not always needed)
- Medications in older adults should be carefully chosen and dosed appropriately
- More medications = more risks
  - Each new medication increases the risk of an adverse drug event (ADE) each year
Optimizing Aging Collaborative at UCSF

For more information contact: OAC@ucsf.edu

The Optimizing Aging Collaborative at UCSF is supported by the UCSF Geriatrics Workforce Enhancement Program: Health Resources and Services Administration (HRSA) Grant Number U1QHP28727.
How can you optimize aging for yourself and others?

Optimize Aging Collaborative at UCSF - Geriatric Workforce Enhancement Program
Get in the Research Game!

Optimize Aging Collaborative at UCSF - Geriatric Workforce Enhancement Program
Research Studies Often Exclude Older Adults

Study of phase III or IV Randomized Trials

- Exclusion over a certain age (one in five)
- Exclusion criteria that may disproportionately affect older adults
  - Physical disability or functional limitations (18%)
  - Decreased life expectancy (22%)
  - Inability to give informed consent (11%)
  - Age-related cognitive impairment (5.5%)

Zulman DM J Gen Intern Med. 2011;7:783–90
Your voice can make a big difference.

- Sign up today to be a part of the Registry
  - Send us an email: AgingRegistry@ucsf.edu
  - Call us: 415-496-6297
  - Go online: www.tideswellucsf.org/AgingRegistry
THE OPTIMIZING AGING REGISTRY AT UCSF

*Your voice can make a big difference.*

**How does it work?**
- You sign up and tell us a little about yourself

**What can you expect?**
- We will contact you when UCSF studies are looking for people like you.
- You can decide whether or not to be in the study.
- We will send you quarterly newsletters about research findings and studies from UCSF and from the Registry.
Resources

• Healthinaging.org

• Optimizingaging.org

• Anna.Chodos@ucsf.edu
• Christine.Ritchie@ucsf.edu

• Tideswellucsf.org